

CLAIMS:

1. A communication system comprising at least a transmitter (1) and a receiver (2) intended to receive symbols coming from a PSK modulation, and comprising estimation means (62) for estimating a frequency error relating to a symbol based on a sequence of symbol phases,

5 characterized in that said receiver comprises calculation means (52) for calculating a phase sequence, called initial sequence (S1), based on decisions made on symbols, and means for detecting and correcting phase jumps in this initial sequence, to supply a phase sequence, called final sequence (S2), to said frequency error estimation means (62).

10 2. A communication system as claimed in claim 1, characterized in that said means for detecting and correcting phase jumps comprise:

- modifying means (100) for modifying said initial sequence (S1) so as to produce a plurality of modified sequences (C_i^+ ; C_i^- ; $C_{p,k}^+$; $C_{p,k}^-$), which each compensate for a phase jump configuration,

15 - calculation means (110) for calculating straight line equations which determine the initial sequence (D_0) and the modified sequences (D_i^+ ; D_i^- ; $D_{p,k}^+$; $D_{p,k}^-$),

- calculation means (120) for calculating for the initial sequence and the modified sequences a mean difference between the initial or modified phases and the phases produced by the corresponding straight line equation (σ_0^2 ; $(\sigma_i^+)^2$; $(\sigma_i^-)^2$; $(\sigma_{p,k}^+)^2$; $(\sigma_{p,k}^-)^2$), said final

20 sequence being formed by the sequence whose mean difference is minimal.

3. A communication system as claimed claim 2, characterized in that said initial sequence is modified phase-group by phase-group.

25 4. A receiver intended to be used in a communication system as claimed in one of the claims 1 or 2.

5. A receiver as claimed in claim 4, characterized in that said initial sequence is modified phase-group by phase-group.

6. A method of estimating a frequency error relating to a received symbol coming from a PSK modulation, based on a sequence of symbol phases, characterized in that the method comprises a calculation step of calculating a phase sequence, called initial sequence, based on decisions made on symbols, and a step of detecting and correcting phase jumps in this initial sequence, to produce a phase sequence, called final sequence, used for the estimation of a frequency error.

7. A method of detecting and correcting phase jumps in an initial sequence of symbol phases coming from a PSK modulation, characterized in that it comprises:
- a step (c, d) of modifying said initial sequence (S1) so as to produce a plurality of modified sequences which each compensate for a phase jump configuration,
- a step of calculating straight line equations which determine the initial sequence (a) and the modified sequences (e),
- a calculation step of calculating for the initial sequence (a) and the modified sequences (f) a mean difference between the initial or modified phases and the phases produced by the corresponding straight line equation, said final sequence being formed by the sequence whose mean difference is minimal.

8. A method of detecting and correcting phase jumps as claimed in claim 7, characterized in that said initial sequence is modified phase-group by phase-group.

9. A program comprising instructions for implementing the steps of a method of detecting and correcting phase jumps as claimed in claim 7 when said program is executed by a processor.

10. A program comprising instructions for implementing the steps of a method of estimating a frequency error relating to a received symbol, as claimed in claim 6, when said program is executed by a processor.